DOCUMENT RESUME

ED 339 333 HE 025 118

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TITLE Improved Measures of Academic and Social Integration and Their Association with Measures of Student Growth. ASHE Annual Meeting Paper.
PUB DATE 31 Oct 91
NOTE 30p.; Paper presented at the Annual Meeting of the Association for the Study of Higher Education (Boston, MA, October 31-November 3, 1991).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143) -- Information Analyses (070)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Classroom Environment; *College Students; *Departments; Educational Environment; Higher Education; *Individual Development; Learning Experience; *Outcomes of Education; Questionnaires; *Reinforcement; Research; Teacher Student Relationship; *Undergraduate Study; Validity
IDENTIFIERS *ASHE Annual Meeting

ABSTRACT

This study examined 10 educational outcomes reported by a representative group of 1990 seniors (N=536) who entered a public research university in fall 1986. The project tested an improved set of items reflecting scales of academic and social integration and of intellectual and personal growth developed earlier by Pascarella and Terenzini. The study involved four phases. The first examined, via surveys, students' pre-college attitudes and values, and their estimates of their own growth for the entire 4 years. The second developed and tested the new and revised measures of pre-college values and attitudes, of academic and social integration, and of student growth. The third administered a new survey instrument to all 1990 seniors and analyzed the responses. The final stage compared the regression results for the 1990 seniors using the new measures with the regression results for the 1986 results using the previous measures. Findings revealed that the new measures of student pre-college characteristics and college experiences explained between 1% and 23% more variance in growth and outcomes than the old measures. The results suggest that educational outcomes are most heavily influenced by the classroom experience, by student peer linkages and involvement, and by the student's own interests and intellectual investment in learning. Contains 14 references. (Author/GLR)

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IMPROVED MEASURES OF ACADEMIC AND SOCIAL INTEGRATION AND THEIR ASSOCIATION WITH MEASURES OF STUDENT GROWTH

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Paper presented at the 1991 Annual Meeting of the Association for the Study of Higher Education, Boston, Massachusetts, November 1991. The author gratefully acknowledges the assistance of three doctoral students at Albany who assisted with the different phases of the research project: Marios Agrotes, Fuqin Bian, and Debra Woods.

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ASSOCIATION FOR THE STUDY OF HIGHER EDUCATION

This paper was presented at the annual meeting of the Association for the Study of Higher Education held at the Park Plaza Hotel & Towers in Boston, Massachusetts, October 31-November 3, 1991. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

IMPROVED MEASURES OF ACADEMIC AND SOCIAL INTEGRATION AND THEIR ASSOCIATION WITH MEASURES OF STUDENT GROWTH

Abstract

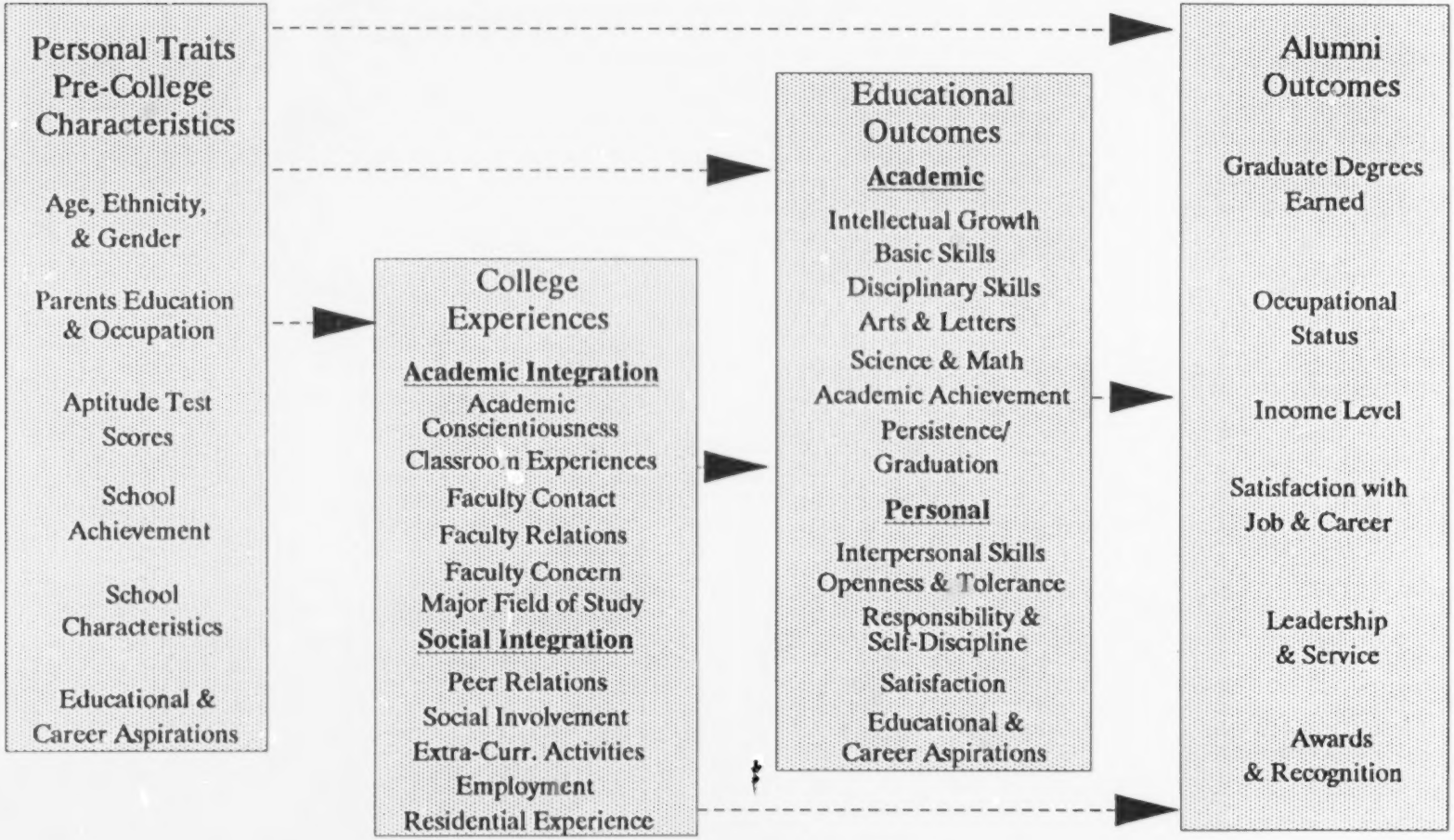
This investigation examines ten educational outcomes reported by a representative group of 1990 seniors who entered a public research university in Fall 1986. Building on previous research, the project tests an improved set of items reflecting scales of academic and social integration and of intellectual and personal growth developed earlier by Pascarella and Terenzini and their colleagues. The research project was carried out in four overlapping stages. In the first phase of the research, we examined outcomes survey data that was previously collected at Albany but not analyzed in depth. In particular, we examined students' pre-college attitudes and values reflected in their responses to an entering student survey, and we examined their estimates of their own growth for the entire four years reflected in the senior survey. Student growth, when reported by seniors on a 9-point scale for the entire four years, results in three separate types of intellectual growth, three types of personal growth, and a new growth scale named "goal clarity." The second stage of analysis consisted of pilot studies which developed and tested the new and revised measures of pre-college values and attitudes, of academic and social integration, and of student growth. The third stage of the project administered the new survey instrument to all 1990 seniors and analyzed the responses. The fourth step in the project compared the regression results for the 1990 seniors using the new measures with the regression results for the 1986 seniors using the previous measures. The findings show that the new measures of student pre-college characteristics and college experiences explain between 1% and 23% more variance in growth and outcomes than the old measures. Taken as a whole, the results suggest that educational outcomes are most heavily influenced by the vitality of the classroom experience, by the strength of student peer linkages and involvement, and by the student's own diverse interests and intellectual investment in learning.

INTRODUCTION

There has been extensive theory development and research on college students in the past three decades (Pascarella and Terenzini, 1991). Bowen (1977), Feldman and Newcomb (1969), Lenning (1974) and Pace (1979) are other authors who earlier summarized the literature showing the many studies examining student academic performance, attrition/persistence, and personality development. The development of intellectual skills during college has received more attention as parents, trustees, state officials, and accreditation bodies display an interest in assessing the results of the instructional enterprise.

There are both educational and economic reasons for being interested in the intellectual growth and collegiate experiences of students. Costs of higher education and growing competition for good students are placing campuses under pressure to document the educational benefits of programs and services they provide for students. Increasingly, campus faculty and staff are beginning to view assessment as a vehicle to enhance the undergraduate experience.

Albany Outcomes Assessment Model



Pascarella, drawing on the work of Chickering, Spady, Tinto, and others, developed a conceptual model for research on student educational outcomes and their relationship to other college experiences (Pascarella, 1985). His longitudinal model postulates that student background characteristics (family background, aptitude, achievement, etc.) influence student educational outcomes, as well as the frequency and quality of student non-classroom interaction with faculty. Institutional factors (such as admissions standards, faculty culture, and organizational size) also have an influence on learning. In addition, the model suggest that informal contact with faculty and other college experiences interact with each other and that both have a reciprocal relationship with learning outcomes and student development. The model is supported by several studies by Pascarella and Terenzini and their associates, using populations of undergraduates at different universities. The attached figure shows the local version of such an outcomes model, developed at Albany over the years. The value of a model is that it guides both the formulation of research questions and subsequent measurement.

METHOD

The model guided our study of the 1990 seniors who entered as freshmen in 1986. Building upon the previous outcomes research at Albany, we constructed a survey instrument and organized a data collection activity that reflects the concepts and variables in the model. One goal of the study was to improve upon the previous measures and to increase the amount of explained variance. In particular, we wanted to examine some of the unanalyzed data collected in the earlier studies. In addition, discussions held with a faculty assessment panel suggested that we examine the role of student ambition and effort in the outcomes reported by graduating seniors.

The study was carried out in four overlapping stages. First, we examined the pre-college and outcomes data from the group of students who entered the institution in 1982 and who completed our senior survey in 1986. In particular, we wanted to examine the growth reported by students looking back over the entire four years. Student growth is self-reported on a battery of items using a 9-point response scale where 1 represents no growth and 9 reflects extraordinary growth. Previous studies at Albany had collected these responses but not analyzed them in depth. In this first phase of the study we also examined in greater depth the data from the 1982 entering student survey and identified several clusters of items reflecting relevant pre-college ambitions, social values, and academic interests. Second, groups of items reflecting the new concepts such as student effort and ambition (but also including tighter language for some of the old items) were pilot tested on students in 1988 and 1989 surveys. These first two phases of the project resulted in the creation or revision of 15 pre-college, college, and outcomes measures (see Figure 2).

The pilot studies prepared us for the important third stage which was the planned followup survey of the Spring 1990 Seniors. The revised college experience and outcomes measures were built into the new instrument which was administered

VARIABLE TYPE	PREVIOUS MEASURES	REVISED MEASURES	NEW MEASURES
PRE-COLLEGE:	Age Ethnicity Gender Parents' Education SAT Score High School Average Rank in Class Likelihood of Attending Graduate School Importance of study in Science Likelihood of Change in Major or Career		Academic Diversity Scale Social Concerns Scale Ambitious Goals Scale
COLLEGE:			
Academic Integration	Faculty Relations Scale Student Contacts with faculty outside of class	Classroom Experience Scale Faculty Concern-Major Faculty Concern-Campus	Academic Conscientiousness Scale
Social Integration	Social Involvement Extra-Curricular Activities Hours of Employment per week on and off the campus	Peer Relations Scale	
OUTCOMES:	Final Grade Point Average Highest Degree Expected "If you had it to do all over again, would you still attend this college?"	Intellectual Growth Scales (Disciplinary Study, Arts & Letters, Scientific Method) Personal Growth Scales (Interpersonal, Openness & Tolerance, Responsibility/Control)	Goal Clarity Scale

to seniors who had completed the entering student survey in 1986. Useable returns were received from 536 seniors, about 40% of the 1986 freshmen still enrolled. After preparing the data for analysis, principal components analysis was performed to confirm the old and new measures reflecting the concepts in the model. As a fourth and final step, we compared the 1990 results using the new instrument, with the 1986 results using the previous measures.

RESULTS

Figure 2 summarizes the results of the first two stages of the project. The variables are grouped into nine categories: pre-college, college, and outcomes on the left axis, and previous measures, revised measures, and new measures across the top. Unchanged from the earlier studies at Albany are ten pre-college measures, five college experience variables, and three outcomes. Student pre-college characteristics were enhanced by the development of three new measures of student values and goals: academic diversity, ambitious goals, and social concerns. The reliability analysis for the items in these scales is shown in Table 2.

The Academic Diversity items reflect freshman interest in understanding other cultures, studying abroad, and valuing educational breadth and creativity. The Social Concerns Scale reflects the perceived Importance of Environmental, Political, and Community Service Activity. The Ambitious Goals Scale reflects freshman desires to become a recognized authority, be responsible for the work of others, and to become financially well off.

Revised measures of Academic Integration included the Classroom Experience and Faculty Concern Scales shown in Table 3A. The Classroom Experience Scale was strengthened by the addition of new items and the response scale was lengthened from 4 points to 5. The internal consistency reliability (Alpha) improved from .60 to .82. In the Faculty Concern Scale respondents rate faculty on their respect for students as people, their interest in student intellectual development, their availability outside of class, and the quality of their instruction. Separate responses for faculty in the major department and for campus faculty in general were constructed. A new scale of Academic Conscientiousness was developed for this study and is shown in Table 3B. The items reflect the extent to which the student keeps up with course assignments, exercises good study habits, and gives a higher priority to academic than to social obligations. The Social Integration measures were altered only by the addition of two items to the Peer Relations Scale; the reliability Alpha) increased from .84 to .87, as shown in Table 3C.

Three variables, Final Grade Point Average, Highest Degree Expected and "If you had it to do all over again, would you still attend Albany?", are traditional outcomes measures previously used at Albany and at many other campuses. The other seven outcomes measures represent one of the more important findings from this research project. Student assessments of their own college growth, on a battery of items using a nine point response scale, yielded the seven growth scales shown in Tables 4, 5, & 5A. The analysis identified three distinct types of intellectual growth (Table 4), three different personal development scales (Table 5), and a new measure we call Goal Clarity. The correlations among these growth scales range from .30 to

.63 (See Table 1A).

Earlier studies by Pascarella and Terenzini(1980), by Terenzini, et.al.(1982,1984), and by Volkwein,et.al.(1986) found that student one year growth, when reported on a 4-point response scale, reflected two kinds of intellectual growth: one scale called academic skill development, intellectual skill development, or academic growth, (depending on the study), and another scale generally referred to as academic content. This 1990 study, however, finds that the four-year intellectual growth items reflect three correlated but distinct types of intellectual growth shown in Table 4:

(a) **Disciplinary skills** (Alpha =.83) reflecting growth in disciplinary thought and methods, understanding the inter-relatedness of different fields, recognizing general principles, and gaining factual knowledge. These items appear to be the products of student experiences in the major.

(b) **Arts and Letters** (Alpha =.78) concerns itself with artistic expression, creativity, literature, writing, and historical perspective.

(c) **Scientific Methods** (Alpha =.76) includes items reflecting growth in science, math, problem solving, and analysis.

Similarly, the earlier studies by Terenzini and his colleagues used one scale of personal growth, whereas our 1990 senior survey results identify three distinct types of student personal development, shown in Table 5. The first two are "other-directed" while the third is inner-directed:

(a) **Interpersonal Skills** (Alpha = .81) reflect the skills necessary to interact successfully with others, such as teamwork, conflict resolution, social adaptation, and speaking effectively.

(b) **Openness and tolerance** (Alpha = .79) shows ones ability to cope with ethical issues and differences of culture and race, while remaining open to new ideas and intellectual variety.

(c) **Responsibility and Self-Control** (Alpha = .76) is a scale of three items measuring growth in personal responsibility, self-discipline, and self-reliance.

Table 5A shows the reliability analysis for the new scale of growth in **possessing goal clarity.** On this scale, students recorded their preparedness for graduate school, life, and career.

During the third phase of the project, we examined the patterns of influences that the various pre-college and college variables had on the outcomes measures. Tables 6, 7, and 8 display the results of the regression analysis. The tables show the beta weights and R-square values for each of the ten outcomes measures used in the study. There are two ways to read the tables - vertically and horizontally. Looking vertically at the results for each regression, the beta weights show the variables which are most strongly associated with each dependent variable.

Looking first at the intellectual growth measures in Table 6, it is clear that the academic integration variables, especially the classroom experience, exert the strongest influence on the three types of intellectual growth reported by the 1990 seniors. The pre-college variables account for between 4% and 11% of the variance, whereas the college experiences account for 16% to 22%. The students' classroom experiences display the largest beta weight in all three regressions. Faculty academic contact is significantly associated with growth in Scientific Methods and Disciplinary Skills. Among the pre-college variables, Academic Diversity is a significant influence on growth in Arts and Letters and in Disciplinary Skills. The

measures of social integration are not significantly associated (except social involvement with Arts and Letters).

Table 7 shows the regression results for the three scales of student personal development. The pre-college measures explain more of the variance (ranging from 12% to 15%) in personal growth than they did in the case of intellectual growth. An interest in Academic Diversity and being Female are strong predictors of growth in Interpersonal Skills, Tolerance, and Responsibility. Surprisingly, a high SAT score is negatively associated with growth in two of the three growth measures. The college experience variables account for 22% of the variance in the development of interpersonal skills. Apparently, the campus experience, especially the development of strong peer interactions, is an important contributor to this kind of growth. The Classroom scale again is significantly associated with all three growth measures. Student Peer Relations and Social Involvement are important influences on Responsibility and Tolerance, respectively.

Table 8 displays the regression results for Cum GPA, Highest Degree, Goal Clarity, and Attend All Over Again. As in previous studies of student performance, Cum GPA is strongly predicted by high school average and total SAT Score, but we also found that two of our new scales, academic conscientiousness and academic diversity, are significated associated. The pre-college measures account for 23% of the variance in student grades, while the measures of academic and social integration explain 13%. Note that the hours of student employment per week is a significant negative influence on student GPA.

Over two-thirds of the explained variance in students' degree aspirations are predicted by the pre-dispositions they brought with them to college. As expected, graduate school plans upon entrance is the single most influential variable in predicting senior year plans for a higher degree. Faculty academic contact is the only campus experience with a significant beta weight.

For the last two outcomes measures shown in Table 8, the college experiences account for nearly all of the explanatory power. The Classroom Experience, Peer Relations, Faculty Relations, and Academic Conscientiousness Scales are all highly influential in preparing students with clear goals for life and career. In their willingness to attend Albany "all over again," the senior responses indicated that the Classroom Experience, combined with a rich social life and Faculty Concern accounted for almost all the variance. The pre-college variables are not significant.

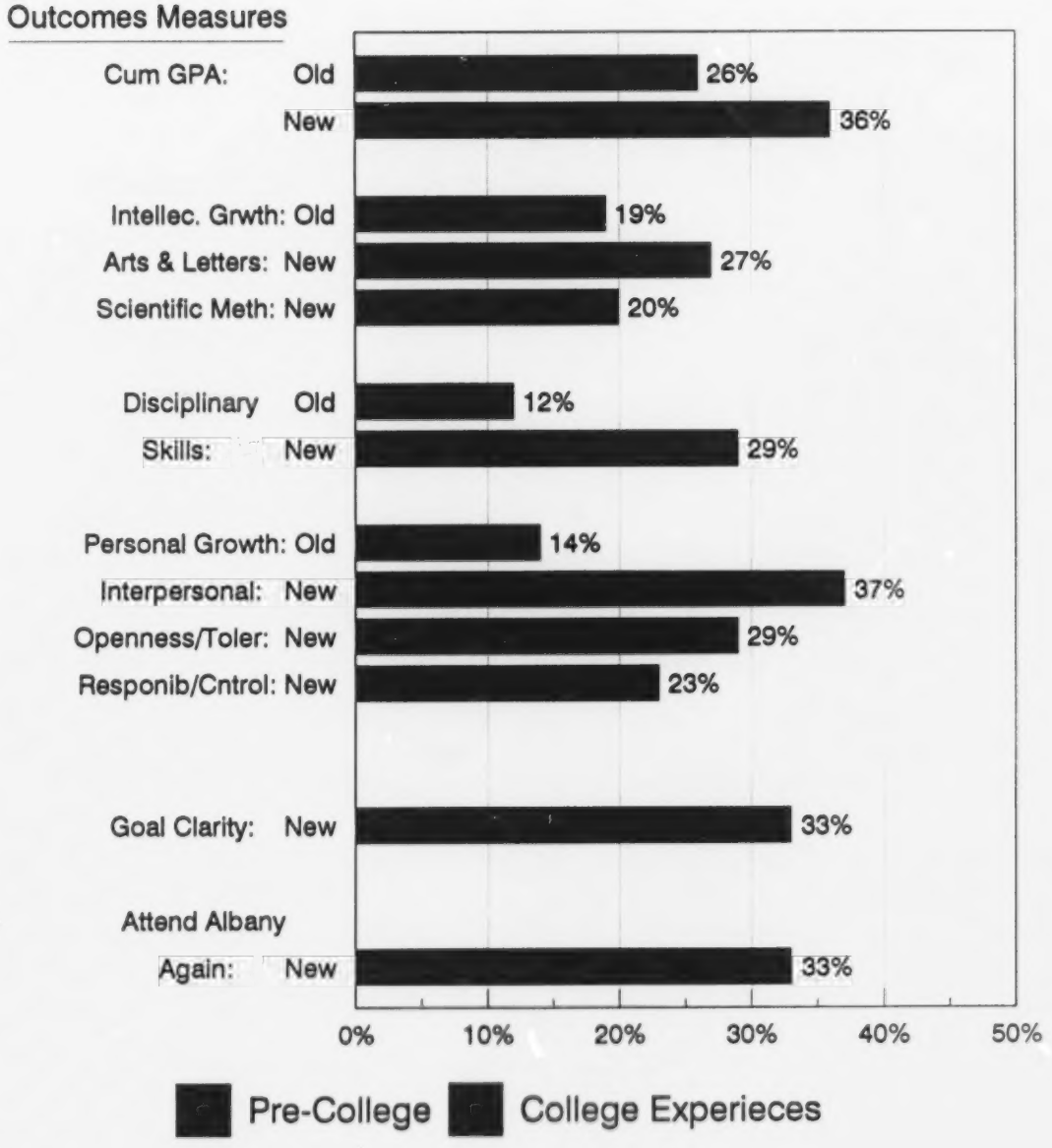
Examining Tables 6, 7, and 8 horizontally, we see that the Classroom Experience Scale has a significant beta weight with eight of the ten outcomes measures, and in six of the ten regressions it is the most influential variable. Clearly, the vitality of the students' experiences in the classroom is the single most important ingredient in student growth. Student Academic Conscientiousness, Social Involvement and Peer Relations, constitute other college experiences which contribute inportantly to a number of student outcomes.

Among the pre-college predictors of senior outcomes, freshman interest in Academic Diversity is influential for 7 of the 10 dependent variables. Having a high SAT score is negatively associated with three of the new growth measures. There seems to be no particular pattern to the generally weak influences of the other pre-college variables. For six out of the ten outcomes, the measures of academic and social integration are more influential than the characteristics and attitudes students held when they entered the university.

These results are consistent with Terenzini's previous studies at Albany which showed that many pre-college traits, such as age, parent's education, high school grades, and in several cases even gender, proved not to be significantly associated with self-reported measures of student growth. (Females in our sample,

OUTCOMES MEASURES:

The Percent of Variance Explained by the Old and the New Measures of Pre-College Characteristics, and College Experiences



however, did report more personal/social growth than males.)

Given the contents of these scales, our findings strongly suggest that educational outcomes are the most heavily influenced by the vitality of the classroom experience, by the strength of student social involvement and peer linkages, and by the student's own effort and intellectual investment in learning. But the measures of academic integration, especially the classroom experience, proved to be more influential in predicting the intellectual growth outcomes, whereas the social integration measures, especially peer relations, are more strongly associated with growth in personal and social development. Our findings suggest that experiences both inside and outside the classroom contribute heavily to student growth. There are different kinds of growth, however, and the influences vary.

In the last phase of the project, we compared the results of the regression analysis on the responses of the 1990 seniors with the regression results from the 1986 seniors. The results are visibile in the improved amounts of explained variance shown on the Figure 3 bar graph. The bars show the percent of variance explained for each of the outcomes regressions. Comparing the measures from the study of the 1986 seniors at Albany with these latest results from the research on the 1990 seniors, Figure 3 shows that, in every case, the new measures of academic and social integration exhibit greater explanatory power than the old measures. The increased amounts of explained variance range from as little as 1%, in the case of Scientific Method, to as much as 17% for Disciplinary Skills and 23% for Interpersonal Skills. The improvements in Cum GPA, Openness and Tolerance, Arts and Letters, and Responsibility/Control are in the 7% to 15% range.

CONCLUSION

One of our goals in this study was clearly accomplished. The assessment efforts at the University encouraged us to explore enhanced measures of student pre-college attitudes and interests, academic integration, and self-reported growth. By increasing the explanatory power of the pre college and college variables for a variety of college outcomes, we have increased the value of such research for policy and practice on the campus. In addition to developing new and more reliable measures of the concepts in our outcomes model, the regression analysis identifies those aspects of the undergraduate experience which deserve administrative and faculty attention because of their important role in student growth. Our findings confirm earlier evidence that the greatest student learning and growth is produced by the vitality of the instructional experience, combined with the student's own academic interests, effort, social involvement, and peer support. The classroom setting, in particular, provides the single most important influence on a variety of desirable outcomes of the four-year undergraduate experience. But we also discovered important influences from student interest in academic diversity before college, and from a variety of student interactions outside the classroom during college.

As a second important outcome of the research project, we ended the study with a more complex view of student growth than we began with. When students are asked to rate various aspects of their growth over the entire four year undergraduate experience, we found that their intellectual growth could be classified into three or four separate but inter-related cognitive areas:

(a) Disciplinary skills related to the major field of study,
(b) Growth related to the arts and letters and humanities,
(c) Skills related to problem solving and analysis in science and mathematics,
(d) Basic skills (this scale was too weak to be used with this population, but it remains as a theoretical construct that may have more relevance for

other student populations in other institutions.)

A similar transformation occurred in our view of student personal development during the project. We entered the study thinking of personal growth as a single concept, but instead found three distinct types of student development:

(a) Relational skills reflecting interaction, teamwork, and adaptiveness,
(b) Attitudes of intellectual and cultural openness and tolerance,
(c) Personal qualities of responsibility, self-discipline, and self-reliance.

Another scale named Goal Clarity is a composite of intellectual and personal preparedness for life after college. These are eight important areas of growth that every campus hopes its students are experiencing.

One strength of this approach is the use of multiple measures of student outcomes. The diversity of the measures provides richness to the analysis, and avoids the narrowness of relying on a single criterion.

This project makes a third important discovery, namely that the revised and new measures produce higher proportions of explained variance in several outcomes. It is tempting to attribute these results solely to the improved measures, especially since we know of nothing to suggest that the 1990 seniors at Albany are different from earlier cohorts. However, a question remains. How much of the improvement in explained variance can be attributed to enhancement of the old scales, how much to the new scales, and how much to differences in the sample population? The data in Table 9 suggest a partial answer.

During the University's 1991 followup study of the 1990 freshmen, we identified 200 freshmen who were sent the "old" version of the Classroom Experience Scale within the larger survey instrument. All other freshmen in the sample received the newer version. We selected the Classroom Scale because of its important and influential role in eight of the ten outcomes regressions. We felt that such a split sample technique would allow us to judge how much of the Classroom Scale's influence was due to improved items and larger response scale, and how much to other factors. The 21% response (N=42) from the "experimental" group receiving the older version of the scale was not high enough to permit regression analysis, but the correlations with the eight outcomes measures are shown in Table 9.

The first two columns of Table 9 are derived from the populations and data that produced the results shown in Figure 3. The two versions of the Classroom Scale produced much higher correlations for the 1990 seniors than for the 1986 seniors. The third or middle column of Table 9 shows the correlations between the original 1980s version of the Classroom Scale and the outcomes measures for the experimental group of 1991 freshmen. The last two columns in Table 9 display the correlations for the main group of responding 1991 freshmen -- one using the original five item Classroom Scale with a 5-point response grid, the other using the newer set of nine items and the 5-point response. Comparing the correlations for the "experimental" group of 42 freshmen in the middle column with the others, we see that six out of eight correlations are higher than those for the 1990 seniors, six out of eight higher than those of the 1991 freshmen five item scale, and five out of eight are higher than the freshmen nine item scale. This strongly suggests that the new Classroom items with larger response scales, even with their greater standard deviations, are barely as good as the original "old" version.

From this analysis it seems unlikely that the "new and improved" Classroom Scale is significantly better at predicting student outcomes than the original version developed by Pascarella and Terenzini and their colleagues. Apparently, the regression results in Tables 6, 7, and 8, and the increases in explained variance shown in Figure 3, must be attributed either to differences in the populations sampled or to the introduction of additional measures, such as academic diversity and academic conscientiousness. It is clear from these results that the scales of academic diversity and conscientiousness contributed significantly to several of the

outcomes regressions. But differences between the 1980s and 1990s populations may also contribute to the results. Testing these scales on other populations using split samples is needed.

REFERENCES

Astin, A.W. Four Critical Years. San Francisco: Jossey-Bass, 1977.

Bowen, Howard R. Investment in Learning: The Individual and Social Value of American Higher Education. (1977) Jossey-Bass Inc.., Publishers.

Chickering, A.W. Education and Identity. San Francisco: Jossey-Bass, 1969.

Feldman, K.A., and T.M. Newcomb. The Impact of College on Students. San Francisco: Jossey-Bass, 1969.

Pace, C. Robert. Measuring Outcomes of College: Fifty Years of Findings and Recommendations for the Future. (1979) Jossey-Bass Inc.., Publishers.

Pascarella, E.T. College Environmental Influences on Learning and Cognitive Development. In Higher Education: Handbook of Theory and Research (vol.. 1), edited by J.C. Smart, pp. 1-61. New York: Agathon Press, 1985.

Pascarella, E.T. and Terenzini, P.T., How College Affects Students. San Francisco: Jossey-Bass, 1991.

Terenzini, P.T., and Pascarella, E.T., "Student/Faculty Relationships and Freshman Year Educational Outcomes: A Further Investigation", Journal of College Student Personnel, 21 (November 1980), 521-528.

Terenzini, P.T., Pascarella, E.T., and Lorang, W.G., "An Assessment of the Academic and Social Influences on Freshman Year Educational Outcomes", Review of Higher Education, 5 (1982), 86-110.

Terenzini, P.T., Theophilides, C., and Lorang, W.G., "Influences on Students' Perceptions of Their Academic Skill Development During College", Journal of Higher Education, 55 (1984), 621-636.

Terenzini, P.T., and Wright, T.M., "Influences on Students' Academic Growth During Four Years of College", Research in Higher Education, 26 (1987), 161-170.

Terenzini, P.T., and Wright, T.M., "The Influence of Academic and Social Integration on Students' Personal Development during Four Years of College." Paper presented at the meeting of the Association for Institutional Research, Kansas City, Mo. (1987).

Tinto, V. "Dropout from Higher Education." Review of Educational Research, 45 (1975), 89-125.

Volkwein, J.F., King, M.C., and Terenzini, P.T., "Student-Faculty Relationships and Intellectual Growth Among Transfer Students", Journal of Higher Education, 57 (1986), 413-430.

ASHE TABLE 1A

MEANS AND STANDARD DEVIATIONS
FOR TEN OUTCOMES MEASURES

	Mean	Standard Deviation
Cum. GPA	3.00	.43
Expected Highest Degree	2.26	.61
Attend Albany All Over Again	3.59	1.22
Intellectual Growth		
Arts & Letters	5.95	1.35
Scientific Method	5.94	1.31
Disciplinary Study	6.34	1.14
Personal Growth		
Interpersonal Skills	6.49	1.31
Openness Tolerance	6.75	1.23
Responsibility & Self-Control	7.13	1.48
Goal Clarity	6.32	1.36

ASHE TABLE 1B

CORRELATIONS FOR TEN OUTCOMES MEASURES

	Scienfific Method	Disc. Study	Inter-personal Skills	Openness Tolerance	Responsibility & Self Control	Clear Goals	Cum GPA	Expected Highest Degree	Attend Albany All Over Again
Arts & Letters	.30	.58	.53	.59	.38	.45	-.07	.16	.18
Scientific Method		.58	.42	.39	.35	.54	-.01	.06	.24
Disciplinary Study			.49	.45	.43	.58	.08	.18	.23
Interpersonal Skills				.63	.58	.54	-.08	-.02	.27
Openness Tolerance					.47	.45	-.08	.03	.17
Responsibility & Self Control						.58	-.03	-.03	.12
Clear Goals							.18	.12	.31
Cum. GPA								.21	.12
Expected Highest Degree									.05

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TABLE 2

New Pre-College Measures of Student Values and Goals

	Item/Total Correlation	Alpha if Item Deleted
Academic Diversity Scale (Alpha = .70)		
1. To learn more about other languages and cultures	.55	.62
2. To learn more about myself, my values, and my life's goals	.48	.65
3. To learn to think creatively and analytically	.45	.66
4. To gain a broad, liberal arts education and appreciation of ideas	.45	.66
5. Spend a semester or year studying in a foreign country	.41	.69
Ambitious Goals Scale (Alpha = .63)		
1. Becoming an authority in my field	.42	.57
2. Obtaining recognition from my colleagues for contributions to my special field	.40	.57
3. Having administrative responsibility for the work of others	.40	.58
4. Being very well off financially	.37	.59
5. Being successful in a business of my own	.34	.61
6. Raising a family	.28	.62
Social Concerns Scale (Alpha = .79)		
1. Participating in a community action program	.60	.75
2. Helping to promote racial understanding	.58	.76
3. Influencing social values	.57	.76
4. Influencing the political structure	.50	.77
5. Developing a meaningful philosophy of life	.49	.77
6. Keeping up to date with political affairs	.45	.78
7. Becoming involved in programs to clean up the environment	.44	.78
8. Helping others who are in difficulty	.36	.79

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TABLE 3A

Revised Scales of Academic and Social Integration

	Item/Total Correlation	Alpha if Item Deleted
Classroom Experience Scale (Alpha = .82)		
1. Been intellectually stimulated by the material covered in a class	.65	.78
2. Enjoyed your classes	.62	.79
3. I am satisfied with my academic experiences at Albany	.58	.79
4. My academic experiences at Albany have had a positive influence on my intellectual growth and interest in ideas	.54	.80
5. I am satisfied with the extent of my intellectual development at Albany	.53	.80
6. Been in classes where you learned something new	.47	.81
7. Few of my courses at Albany have been intellectually stimulating	.46	.81
8. Had outside-of-class assignments that were learning experiences	.44	.81
9. Had faculty members who came to class well prepared	.41	.81
Faculty Concern-Major (Alpha = .83)		
1. Faculty interest in your academic/intellectual	.74	.74
2. Faculty respect for students as people	.68	.77
3. Quality of instruction	.61	.80
4. Availability of faculty outside of class	.61	.80
Faculty Concern-Campus (Alpha = .75)		
1. Faculty interest in your academic/intellectual	.63	.63
2. Faculty respect for students as people	.59	.66
3. Availability of faculty outside of class	.51	.70
4. Quality of instruction	.45	.74

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ASHE TABLE 3B

NEW MEASURE OF ACADEMIC CONSCIENTIOUSNESS

(Responses on 5-point Likert-type Scale)

	Item/Total Correlation	Alpha if Item Deleted
Academic Conscientiousness (Alpha = .88)		
*1. I am lazy about keeping up with course assignments	.74	.85
2. In general I exercise good study habits	.70	.85
*3. I tend to study only when I need to	.65	.86
*4. During most of the semester, I do very little studying on weekends	.69	.85
5. I generally keep up with my reading assignments for class	.65	.86
*6. Most of the time at Albany, I give a higher priority to having fun than to studying	.60	.86
7. Generally I put a good deal of effort into being well prepared for examinations	.53	.87
8. On weekends I do more studying than partying	.53	.87

* Reverse scored for negative wording

TABLE 3C

Revised Scales of Academic and Social Integration

	Item/Total Correlation	Alpha if Item Deleted
Peer Relations (Alpha = .87)		
1. I have developed strong friendships with other students	.70	.84
2. My interpersonal relationships with other students have had a positive influence on my personal growth, values, and attitudes	.70	.84
3. The student friendships I have developed have been personally satisfying	.68	.84
4. It has been difficult for me to meet and make friends with other students	.62	.85
5. I know several Albany students who would be willing to help me if I had a personal problem	.58	.85
6. My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas	.58	.85
7. Met other students who were really interesting	.56	.86
8. I am confident in my ability to make new friendships	.55	.86

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ASHE TABLE 4

RELIABILITY ANALYSIS FOR NEW SCALES OF STUDENT FOUR YEAR INTELLECTUAL GROWTH

(Responses given on a 9-point Growth Scale)

	Item/Total Correlation	Alpha if Item Deleted
Disciplinary Skills (Alpha = .83)		
1. Understanding a particular discipline's various schools of thought	.70	.78
2. Recognizing general principles in specific events/conditions	.65	.79
3. Understanding the inter-relatedness of different fields of study	.62	.80
4. Synthesizing a body of information	.56	.81
5. Understanding a particular discipline's research methods	.56	.81
6. Learning fundamental principles, generalizations, or theories	.50	.82
7. Gaining factual knowledge	.45	.82
Arts & Letters (Alpha = .78)		
1. Knowing literature of recognized merit	.62	.73
2. Placing current problems in historical perspective	.57	.74
3. Appreciating artistic and creative expresssion	.56	.74
4. Developing the ability to formulate creative and original ideas	.51	.76
5. Developing intellectual curiosity	.50	.76
6. Writing Effectively	.44	.77
Scientific Methods (Alpha = .76)		
1. Developing problem solving skills	.63	.68
2. Thinking analytically & logically	.55	.70
3. Understanding scientific findings	.53	.71
4. Understanding mathematical concepts	.51	.73
5. Evaluating ideas and methods critically	.45	.74

TABLE 5

RELIABILITY ANALYSIS FOR NEW SCALES OF STUDENT FOUR YEAR PERSONAL DEVELOPMENT

(Responses given on a 9-point Growth Scale)

	Item/Total Correlation	Alpha if Item Deleted
Interpersonal Skills (Alpha = .81)		
1. Coping with conflict	.62	.76
2. Functioning effectively as a member of a team	.61	.76
3. Preparing for active participation in a democratic society	.59	.77
4. Developing interpersonal & social skills	.58	.77
5. Adapting to different social situations	.52	.78
6. Speaking effectively	.45	.79
Openness/Tolerance (Alpha = .79)		
1. Coping with moral and ethical issues	.62	.74
2. Understanding cultural differences	.61	.74
3. Developing an openness to new ideas	.58	.75
4. Relating well to people of different races	.54	.76
5. Developing a better understanding of myself (interests, talents, values, limitations)	.49	.77
6. Gaining exposure to a variety of new intellectual areas	.43	.78
Responsibility/Self-Control (Alpha = .76)		
1. Exercising personal responsibility	.70	.56
2. Exercising self-discipline	.57	.71
3. Functioning independently (self-reliance)	.52	.75

ASHE TABLE 5A

Reliability Analysis for the New Scale of Goal Clarity
(Responses Given on a 9-point Growth Scale)

	Item/Total Correlation	Alpha if Item Deleted
Goal Clarity (Alpha = .84)		
1. Possessing Clear Goals	.67	.81
2. Developing a Clearer Idea of my Career Goals and Plans	.65	.81
3. Preparing for Continued Personal and Intellectual Growth after College	.59	.82
4. Building a Record of Academic Achievement that will Enhance my Future	.56	.82
5. Developing the Ability to Learn on my Own	.54	.82
6. Gaining Knowledge and Skills directly Applicable to a Career	.54	.82
7. Preparing for Life in a Changing World	.52	.82
8. Preparing for Graduate or Professional School Study	.51	.83

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TABLE 6

Regression Beta Weights for the New Measures of
Student Four Year Intellectual Growth

	Arts & Letters Beta	Arts & Letters R^2	Scientific Method Beta	Scientific Method R^2	Disciplinary Study Beta	Disciplinary Study R^2
Pre-College Variables:		.11		.04		.07
Total SAT Score	-.12					
High School Avg.						
Diversity	.20				.15	
Social Concern						
Ambitiousness						
Grad. School Likelihood						
Change Likelihood						
Science Oriented			.12			
Age						
Female Gender						
Parent's Education						
College Variables:		.16		.16		.22
ACADEMIC INTEGRATION						
Classroom Experience	.32		.25		.35	
Conscientiousness						
Faculty Concern-Major						
Faculty Concern-Campus						
Faculty Relations						
Fac. Contact-Acad.			.16		.18	
Fac. Contact-Social					-.19	
SOCIAL INTEGRATION						
Peer Relations						
Social Involvement	.19					
X-Activities						
Employment						
TOTAL R^2:		.27		.20		.29

Table shows only Beta Weights significant at $P < .10$.

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TABLE 7

Regression Beta Weights for New Measures of Student Four Year Personal Growth

	Interpersonal Skills		Openness & Tolerance		Responsibility & Self Control	
	Beta	R^2	Beta	R^2	Beta	R^2
Pre-College Variables:		.15		.15		.12
Total SAT Score	-.11				-.11	
High School Avg.						
Diversity	.13		.21		.12	
Social Concern						
Ambitiousness						
Grad. School Likelihood					-.10	
Change Likelihood					.10	
Science Oriented						
Age						
Female Gender	.12		.17		.17	
Parent's Education			.09			
College Variables:		.22		.14		.11
ACADEMIC INTEGRATION						
Classroom Experience	.14		.21		.12	
Conscientiousness					.12	
Faculty Concern-Major						
Faculty Concern-Campus						
Faculty Relations						
Fac. Contact-Acad.						
Fac. Contact-Social						
SOCIAL INTEGRATION						
Peer Relations	.28				.20	
Social Involvement	.18		.21			
X-Activities						
Employment						
TOTAL R^2:		.37		.29		.23

Table shows only Beta Weights significant at $P < .10$.

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TABLE 8

Regression Beta Weights for Four Educational Outcomes Measures of 1990 Albany Seniors

	Cum. GPA		Expected Highest Degree		Clear Goals		Attend Albany All Over Again	
	Beta	R^2	Beta	R^2	Beta	R^2	Beta	R^2
Pre-College Variables:		.23		.12		.03		.02
Total SAT Score	.19							
High School Avg.	.36							
Diversity	.13		.12					
Social Concern								
Ambitiousness								
Grad. School Likelihood			.18					
Change Likelihood	.14							
Science Oriented	-.13							
Age								
Female Gender	-.10							
Parent's Education								
College Variables:		.13		.05		.30		.30
ACADEMIC INTEGRATION								
Classroom Experience					.34		.32	
Conscientiousness	.23				.14			
Faculty Concern-Major								
Faculty Concern-Campus							.11	
Faculty Relations					.14			
Fac. Contact-Acad.			.13					
Fac. Contact-Social								
SOCIAL INTEGRATION								
Peer Relations					.16			
Social Involvement							.22	
X-Activities								
Employment	-.16							
TOTAL R^2:		.36		.17		.33		.32

Table shows only Beta Weights significant at $P < .10$.

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ASHE TABLE 9

Correlations Between the Classroom Scale
and Eight Outcomes Measures

Characteristics of Classroom Scales:	Population Samples Studied				
	1986 Seniors (N=178) 5 items 4-point response Mean=2.70 SD = .56	1990 Seniors (N=536) 9 items 5-point response Mean=3.63 SD = .63	1991 Freshmen (N=42) 5 items 4-point response Mean=2.54 SD = .57	1991 Freshmen (N=223) 5 items 5-point response Mean=3.12 SD = .79	1991 Freshmen (N=223) 9 items 5-point response Mean=3.44 SD = .65
OUTCOMES MEASURES					
Attend Albany All Over Again (5 point response scale)		.47	.39	.21	.32
Four Year Intellectual Growth (9 point response scale)	.15		.47	.49	.50
Arts & Letters		.40	.57	.48	.43
Scientific Method		.34	.32	.38	.39
Disciplinary Skills	.12	.43	.57	.52	.54
Four Year Personal Growth (9 point response scale)	.06		.42	.42	.45
Interpersonal Skills		.29	.41	.36	.36
Openness/Tolerance		.31	.59	.39	.42
Responsibility/Self-Control		.22	.43	.35	.45
Goal Clarity		.48	.51	.53	.53